

This listing of claims replaces all prior versions, and listings of claims in the instant application:

Listing of Claims:

1. (Currently Amended) A method for transporting material between various locations on a factory floor, said method comprising:

moving a rail mounted vehicle proximate to a first location;

actuating a material handling mechanism of the rail mounted vehicle to deploy a handling device for grasping material to be transported,

wherein said material handling mechanism allows for horizontal, vertical, and rotational movement of the handling device relative to the rail mounted vehicle; and

moving said material from said first location to a second location.

2. (Canceled)

3. (Original) The method of Claim 1, wherein said rail mounted vehicle comprises a communications system and a system controller, said method further comprising providing bi-directional communication between said system controller and said vehicle assembly.

4. (Original) The method of Claim 3, wherein said communications system is taken from the group consisting of an infrared (IR) link and a radio frequency (RF) link.

5. (Original) The method of Claim 1, wherein said rail mounted vehicle is translatable over an overhead rail system.

6. (Currently Amended) A method for carrying payloads between processing tools in a factory comprising:

providing a carrier coupled to an overhead rail system;

horizontally extending a first mechanism mounted on said carrier; and

vertically extending a second mechanism mounted on said carrier;

grasping a payload;

rotating the first and second mechanisms relative to the carrier; and

transporting said payload from a first location to a second location along said overhead rail system.

7. (Original) The method of Claim 6, wherein said first mechanism comprises an external member and an internal member operatively coupled to each other and said carrier, wherein said external member and said carrier are configured to move relative to said internal member in opposite directions to cause said second mechanism to move away from a center of said support frame.

8. (Original) The method of Claim 6, wherein said second mechanism comprises a plurality of slidably engaged members, wherein said slidably engaged members provide a rigid positional platform when vertically extended.

9. (Original) The method of Claim 7, wherein said second mechanism comprises a gripper assembly.

10. (Original) The method of Claim 6, wherein grasping the payload comprises:

actuating a gripper mechanism to grasp said payload; and
raising said gripper mechanism to move said payload to be
in contact with a gripper housing.

11. (Original) The method of Claim 10, further comprising
depressing a trigger mechanism to cause said gripper mechanism
to release said payload.

12. (Original) The method of Claim 10, further comprising
depressing a trigger mechanism to cause said gripper mechanism
to hold said payload.

13. (Original) The method of Claim 6, wherein said payload
is a semiconductor chip magazine.

14. (Currently Amended) The method of Claim 6, wherein
said first mechanism is horizontally slidable between an
extended position and a ~~non-extended~~ non-extended position; and
said second mechanism is vertically slidable between a raised
position and a lowered position.

15. (Currently Amended) A method for transporting
materials comprising:

moving a vehicle assembly along an overhead rail system to
a position proximate to a target location;

horizontally extending an extendible member assembly to
position a hoist assembly over said target location;

rotating said extendible member assembly to orient said
hoist assembly over said target location; and

vertically extending said hoist assembly for picking-up or
placing a payload at said target location.

16. (Canceled).

17. (Original) The method of Claim 15, wherein said hoist assembly comprises a plurality of slidably engaged members.

18. (Original) The method of Claim 17, wherein vertically extending said hoist assembly comprises spooling a belt to allow said slidably engaged members to slide relative to each other in the vertical direction.

19. (Original) The method of Claim 15, wherein vertically extending said hoist assembly comprises positioning a gripper assembly proximate to said payload to pick up said payload from said target location.

20. (Original) The method of Claim 15, wherein vertically extending said hoist assembly comprises positioning a gripper assembly proximate to said payload to place said payload at said target location.

21. (Original) The method of Claim 15, wherein said payload is a semiconductor chip magazine.

22. (Original) The method of Claim 15 further comprising grasping said payload and transporting said payload from a first position to a second position.

23. (Original) The method of Claim 22, further comprising placing said payload in a storage unit during said transporting.

24. (Original) The method of Claim 15, wherein vertically extending said hoist assembly comprises picking up or placing said payload into a chute loader positioned on a processing tool.

25. (New) A method for carrying payloads between processing tools in a factory comprising:

providing a carrier coupled to an overhead rail system;
horizontally extending a first mechanism mounted on said carrier; and
vertically extending a second mechanism mounted on said carrier;
grasping a payload; and
transporting said payload from a first location to a second location along said overhead rail system,
wherein said first mechanism comprises an external member and an internal member operatively coupled to each other and said carrier, and wherein said external member and said carrier are configured to move relative to said internal member in opposite directions to cause said second mechanism to move away from a center of said support frame.

26. (New) A method for carrying payloads between processing tools in a factory comprising:

providing a carrier coupled to an overhead rail system;
horizontally extending a first mechanism mounted on said carrier; and
vertically extending a second mechanism mounted on said carrier;
grasping a payload; and
transporting said payload from a first location to a second location along said overhead rail system,

wherein grasping the payload comprises:
actuating a gripper mechanism to grasp said payload; and
raising said gripper mechanism to move said payload to be
in contact with a gripper housing.

27. (New) The method of Claim 26, further comprising
depressing a trigger mechanism to cause said gripper mechanism
to release said payload.

28. (New) The method of Claim 26, further comprising
depressing a trigger mechanism to cause said gripper mechanism
to hold said payload.

29. (New) A method for transporting materials comprising:
moving a vehicle assembly along an overhead rail system to
a position proximate to a target location;

horizontally extending an extendible member assembly to
position a hoist assembly over said target location, wherein
said hoist assembly comprises a plurality of slidably engaged
members; and

vertically extending said hoist assembly for picking-up or
placing a payload at said target location, wherein vertically
extending said hoist assembly comprises spooling a belt to
allow said slidably engaged members to slide relative to each
other in the vertical direction.

30. (New) A method for transporting materials comprising:
moving a vehicle assembly along an overhead rail system to
a position proximate to a target location;

horizontally extending an extendible member assembly to
position a hoist assembly over said target location;

vertically extending said hoist assembly for picking-up or placing a payload at said target location;

grasping said payload and transporting said payload from a first position to a second position; and

placing said payload in a storage unit during said transporting.

31. (New) The method of claim 1, wherein the method comprises assembling semiconductor chips into packages.

32. (New) The method of claim 5, wherein the method comprises assembling semiconductor chips into packages.

33. (New) The method of claim 6, wherein the method comprises assembling semiconductor chips into packages.

34. (New) The method of claim 15, wherein the method comprises assembling semiconductor chips into packages.

35. (New) The method of claim 25, wherein the method comprises assembling semiconductor chips into packages.

36. (New) The method of claim 26, wherein the method comprises assembling semiconductor chips into packages.

37. (New) The method of claim 27, wherein the method comprises assembling semiconductor chips into packages.

38. (New) The method of claim 28, wherein the method comprises assembling semiconductor chips into packages.

39. (New) The method of claim 29, wherein the method comprises assembling semiconductor chips into packages.

40. (New) The method of claim 30, wherein the method comprises assembling semiconductor chips into packages.